

17. Write an equation of a vertical line passing through the point $(-4, -7)$.

18. Write the equation of the line, in slope-intercept form, containing the point $(-4, 5)$ and parallel to $y = -3x + 1$.

19. The line containing the points $(-2, -1)$ and $(x, 5)$ has a slope of -3 .
What is the value of x ?

- A. -4 B. -2 C. -1 D. 0

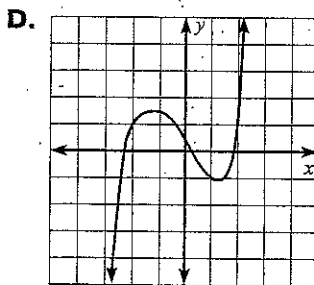
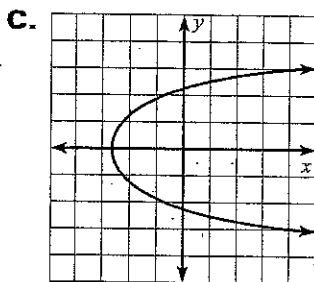
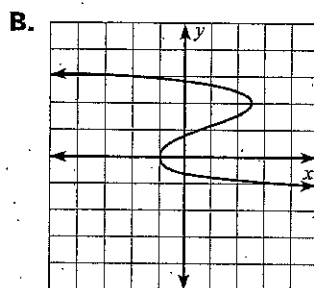
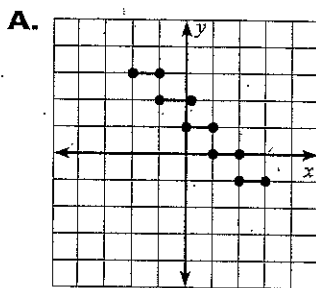
20. What is the equation of the line containing the point $(1, -3)$ and $(6, 2)$?

21. An automobile is being tested to find its most efficient speed. The table below gives the gas mileage and speed recorded during one part of the test. Tell whether gas mileage and speed show direct variation. If so, write an approximate equation that relates the quantities.

| | | | | | |
|----------------------|---|----|----|----|----|
| Gas mileage (mi/gal) | 8 | 11 | 15 | 17 | 22 |
| Speed (mph) | 5 | 8 | 10 | 12 | 15 |

Functions and Graphs

22. Consider the relation given by the ordered pairs. $(-5, 0)$, $(-1, -2)$, $(4, -1)$, $(6, -1)$, $(-3, 2)$, $(2, 0)$, $(-6, -5)$. Tell whether the relation is a function.
23. The relation containing the points $(5, 3)$, $(7, 2)$, $(8, 0)$, $(2, 4)$, and $(6, 1)$ is a function.
- a. Write an ordered pair that can be included in this relation so that the new relation is still a function.
- b. Write an ordered pair that can be included in this relation so that the new relation is **not** a function.
24. Which of the following graphs represents a function?



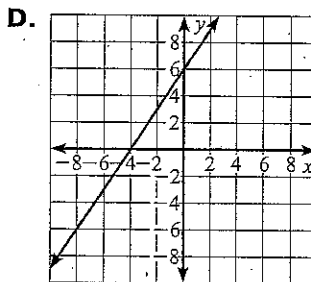
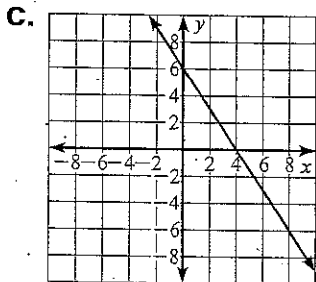
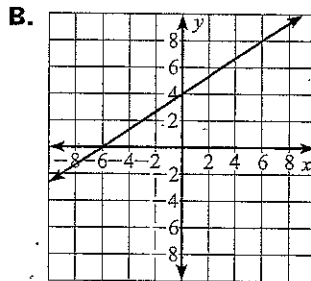
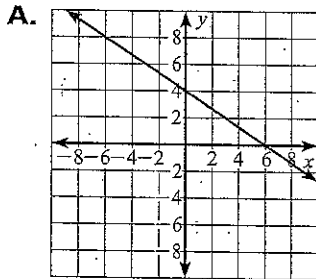
25. What is the slope of the line passing through the points $(-4, 3)$ and $(2, 5)$?
- A. 3 B. $\frac{1}{3}$ C. -3 D. $-\frac{1}{3}$

26. A playground slide has a rise of 10 feet and a run of 12 feet. What is its slope?

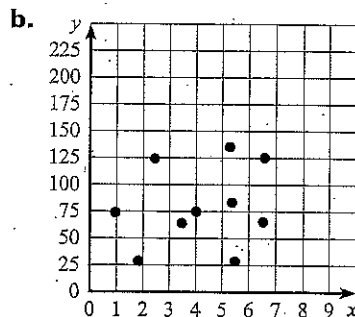
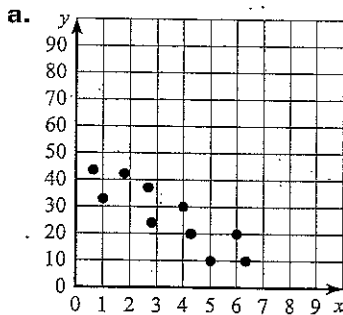
27. What is the x -intercept of the line with the equation $2x - 5y = -40$?

A. 20 B. 8 C. -8 D. -20

28. Which of the following graphs shows the line $y = -\frac{3}{2}x + 6$?



29. Tell whether the correlation coefficient for the data is closest to -1, -0.5, 0, 0.5, or 1.



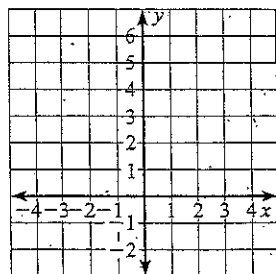
30. The table gives the percentage of students y at a high school who passed an AP exam their senior year x , where x is the number of years after the year 2000. Write an equation for a best-fitting line for the data in the table.

| x | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|-----|-----|------|------|------|------|------|------|
| y | 9.6 | 10.7 | 11.9 | 12.8 | 14.1 | 15.2 | 16.2 |

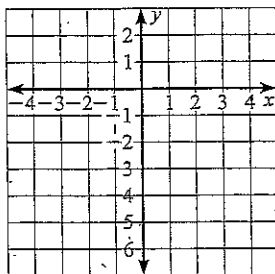
37. Which ordered pair is a solution of $5x - 2y > 6$?
- A. $(0, -2)$ B. $(2, -3)$ C. $(-1, -1)$ D. $(2, 2)$

For Exercises 38 and 39, graph the inequality in a coordinate plane.

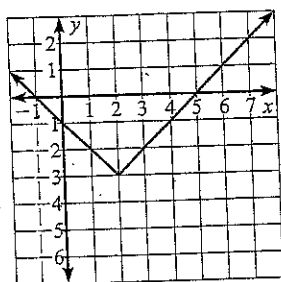
38. $x \leq y - 3$



39. $3x - 4y > 8$



43. Which function is represented by the graph?



- A. $f(x) = |x - 2| - 3$ B. $f(x) = |x + 2| - 3$
 C. $f(x) = |x - 3| - 2$ D. $f(x) = |x + 3| - 2$

44. Compare the graph of $y = -2|x| - 2$ with the graph of $y = |x|$.

45. The vertex of the graph of $y = f(x)$ is $(4, 2)$. What is the vertex of the graph of $y = -f(x + 1) - 3$?

- A. $(3, -1)$ B. $(3, -5)$ C. $(5, -1)$ D. $(5, -5)$

46. The equation of a function is $f(x) = |x^2 - 1|$.

a. Graph and label $f(x)$.

